

Notice of Allowability

Application No.

09/900,678

Examiner

Monique M Wills

Applicant(s)

WOJTOWICZ ET AL.

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 7/12/2004.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ The drawings filed on 06 July 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

ELECTION/RESTRICTIONS

This application is in condition for allowance except for the presence of claims 10-13 to a power system non-elected without traverse. Accordingly, claims 10-13 been cancelled.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claims 10-13 have been cancelled.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: the instant claims are allowable over the prior art of record, because the prior art is silent to a method for producing hydrogen gas from a hydrocarbonaceous material, using a reaction apparatus that includes means for absorbing and releasing thermal energy and having a heat-transfer surface, comprising the following steps, carried out cyclically:

- (a) bringing a quantity of a hydrocarbonaceous material into contact with said heat-transfer surface of said means for absorbing and releasing thermal energy, heated to a

temperature T_{\max} , to effect pyrolysis thereof and thereby to produce quantities of solid carbon-rich residue and hydrogen gas;

(b) effecting combustion of at least a first portion of said quantity of said carbon-rich residue produced in said pyrolysis step; and

(c) utilizing at least a portion of the thermal energy produced in said combustion step to heat said means for absorbing and releasing thermal energy to said temperature T_{\max} , for effecting said pyrolysis step in the next succeeding cycle of said method.

The prior art, such as Detering et al. U.S. Patent 6,395,197, teaches an on-board plasma quench reformer system for hydrocarbon fuel such as a natural gas fuel. In the on-board plasma quench reformer, either liquid natural gas or compressed natural gas is vaporized and converted into hydrogen and a selection of carbon compounds including carbon dioxide, carbon monoxide, and elemental carbon. The hydrogen is then supplied to the internal combustion engine as a reformed fuel source. The carbon is not combusted, and greenhouse gases are not produced. See column 5, lines 25-35. The reference is silent to charging carbon-rich residue to a combustor, and utilizing at least a portion of the terminal energy produced in the combustion to heat the means for absorbing and releasing thermal energy to a temperature for effecting pyrolysis in the next succeeding cycle of the method. Therefore, the instant claims are patentably distinct from Detering.

CONCLUSIONS

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Michael Barr, may be reached at 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW

09/20/04

MICHAEL BARR
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Michael Barr", with a long horizontal line extending from the end of the signature.

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